In the Claims:

-- Claim 1. (Original) A protein conjugate comprising i) a physiologically active polypeptide, ii) a non-peptidic polymer, and iii) an immunoglobulin, which are covalently linked to one another, and having a prolonged *in vivo* half-life of the physiologically active polypeptide.

-- Claim 2. (Original) The protein conjugate according to claim 1, wherein the non-peptidic polymer has two reactive groups at both ends, through which the polymer is covalently linked to the physiologically active polypeptide and the immunoglobulin.

-- Claim 3. (Original) The protein conjugate according to claim 2, wherein the immunoglobulin is covalently linked to at least two complexes of the physiologically active polypeptide and the non-peptidic polymer.

-- Claim 4. (Original) The protein conjugate according to claim 1, wherein the immunoglobulin is selected from the group consisting of IgG, IgA, IgD, IgE, IgM and a mixture thereof.

-- Claim 5. (Original) The protein conjugate according to claim 4, wherein the immunoglobulin is selected from the group consisting of IgG1, IgG2, IgG3, IgG4 and a mixture thereof.

-- Claim 6. (Original) The protein conjugate according to claim 4, wherein the immunoglobulin is a human immunoglobulin.

-- Claim 7. (Original) The protein conjugate according to claim 2, wherein the reactive group of the non-peptidic polymer is selected from the group consisting of aldehyde, propion aldehyde, maleimide and succinamide derivative.

-- Claim 8. (Original) . The protein conjugate according to claim 7, wherein the succinamide derivative is succinimidyl propionate, succinimidyl carboxymethyl, hydroxy succinimidyl or succinimidyl carbonate.

-- Claim 9. (Original) The protein conjugate according to claim 7, wherein the non-peptidic polymer has aldehyde groups at both ends.

-- Claim 10. (Original) The protein conjugate according to claim 1, wherein the non-peptidic polymer is covalently linked at the ends thereof to the amino terminal, lysine residue, histidine residue or cysteine residue of the immunoglobulin and the amino terminal, lysine residue, hisitidine residue or cysteine residue of the physiologically active polypeptide, respectively.

-- Claim 11. (Original) The protein conjugate according to claim 1, wherein the non-peptidic polymer is selected form the group consisting of poly(ethylene glycol), poly(propylene glycol), ethylene glycol-propylene glycol copolymer, polyoxyethylated polyol, polyvinyl alcohol, polysaccharide, dextran, polyvinyl ethyl ether, poly(lactic-glycolic acid), biodegradable polymer, lipid polymer, chitin, hyaluronic acids, and a mixture thereof.

-- Claim 12. (Original) The protein conjugate according to claim 11, wherein the non-peptidic polymer is poly(ethylene glycol).

-- Claim 13. (Original) The protein conjugate according to claim 1, wherein the physiologically active polypeptide is selected from the group consisting of hormone, cytokine, enzyme, antibody, growth hormone, transcription regulatory factor, blood factor, vaccine, structure protein, ligand protein and receptor.

-- Claim 14. (Original) The protein conjugate according to claim 13,

wherein the physiologically active polypeptide is selected from the group consisting of human growth hormone, growth hormone releasing hormone, growth hormone releasing peptide, interferons, colony stimulating factor, interleukins, glucocerebrosidae, macrophage activating factor, macrophage peptide, B cell factor, T cell factor, protein A, suppressive factor of allergy, cell necrosis glycoprotein, immunotoxin, lymphotoxin, tumor necrosis factor, tumor inhibitory factor, transforming growth factor, alpha-1 antitrypsin, albumin, apolipoprotein-E, erythropoietin, hyper-glycosylated erythropoietin, factor VII, factor VIII, factor IX, plaminogen activator, urokinase, streptokinase, protein C, C-reactive protein, renin inhibitor, collagenase inhibitor, superoxide dismutase, platelet derived growth factor, epidermal growth factor, osteogenic growth factor, osteogenesis stimulating protein, calcitonin, insulin, atriopeptin, cartilage inducing factor, connective tissue activator protein, follicle stimulating hormone, leutinizing hormone, FSH releasing hormone, nerve growth factor, parathyroid hormone, relaxin, secretin, somatomedin, insulin-like growth factor, adrenocorticotrophic hormone, glucagon, cholecystokinin, pancreatic polypeptide, gastrin releasing peptide, corticotrophin releasing, thyroid stimulating hormone, monoclonal antibody, polyclonal antibody, antibody derivatives including [Fab]', [Fab]'2 and scFv, and virus-derived vaccine antigen.

-- Claim 15. (Original) The protein conjugate according to claim 14, wherein the physiologically active polypeptide is human growth hormone, interferon-alpha, granulocyte colony stimulating factor or erythropoietin.

-- Claim 16. (Original) A method for preparing the protein conjugate of claim 1, comprising

(a) covalently linking at least one physiologically active

polypeptide, at least one immunoglobulin with at least one non-peptidic polymer having reactive groups at both ends; and

(b) isolating a protein conjugate comprising essentially the active polypeptide, the immunoglobulin and the non-peptidic polymer, which are linked covalently.

-- Claim 17. (Original) The method according to claim 16, wherein step (a) further comprises:

(a1) covalently coupling one end of the non-peptidic polymer with either an immunoglobulin or a physiologically active polypeptide;

(a2) isolating from the resulting reaction mixture a complex comprising the non-peptidic polymer coupled with the immunoglobulin or the physiologically active polypeptide; and

(a3) covalently coupling the free end of the non-peptidic polymer of the complex with the immunoglobulin or physiologically active polypeptide, to produce a protein conjugate comprising the physiologically active polypeptide, the non-peptidic polymer and the immunoglobulin, which are covalently interlinked.

-- Claim 18. (Original) The method according to claim 17, wherein the molar ratio of the physiologically active polypeptide to the non-peptidic polymer in step (a1) ranges from 1: 2.5 to 1: 5.

-- Claim 19. (Original) The method according to claim 17, wherein the molar ratio of the immunoglobulin to the non-peptidic polymer in step (a1) ranges from 1: 5 to 1: 10.

-- Claim 20. (Original) The method according to claim 17,

wherein the molar ratio of the complex obtained in step (a2) to physiologically active polypeptide or immunoglobulin in step(a3) ranges from 1: 1 to 1: 3.

-- Claim 21. (Original) The method according to claim 17, wherein steps (a1) and (a3) are performed in the presence of a reducing agent.

--Claim 22. (Original) The method according to claim 21, wherein the reducing agent is sodium cyanoborohydride, sodium borohydride, dimethylamine borate or pyridine borate.

-- Claim 23. (Amended) A pharmaceutical composition having a prolonged half-life of a physiologically active polypeptide, which comprises a protein conjugate of ~~any one of claims 1 to 15~~ claim 1 and a pharmaceutically acceptable carrier.

-- Claim 24. (Original) A method for prolonging the *in vivo* half-life of a physiologically active polypeptide, which comprises the step of covalently linking a non-peptidic polymer having reactive groups at both ends with a physiologically active polypeptide and an immunoglobulin.

-- Claim 25. (Original) The method according to claim 24, wherein the immunoglobulin is covalently linked to at least two complexes of the physiologically active polypeptide and the non-peptidic polymer.

-- Claim 26. (Original) The method according to claim 24, wherein the immunoglobulin is selected from the group consisting of IgG1, IgG2, IgG3, IgG4, IgA, IgD, IgE, IgM and a mixture thereof.

-- Claim 27. (Original) The method according to claim 26, wherein the immunoglobulin is a human immunoglobulin.

-- Claim 28. (Original) The method according to claim 24, wherein the reactive group of the non-peptidic polymer is selected from the group consisting of aldehyde, propion aldehyde, maleimide and succinamide derivative.

-- Claim 29. (Original) The method according to claim 24, wherein the non-peptidic polymer is selected from the group consisting of poly(ethylene glycol), poly(propylene glycol), ethylene glycol-propylene glycol copolymer, polyoxyethylated polol, polyvinyl alcohol, polysaccharide, dextran, polyvinyl ethyl ether, poly(lactic-glycolic acid), biodegradable polymer, lipid polymer, chitin, hyaluronic acids, and a mixture thereof.

-- Claim 30. (Original) The method according to claim 29, wherein the non-peptidic polymer is poly(ethylene glycol).

-- Claim 31. (Original) The method according to claim 24, wherein the physiologically active polypeptide is selected from the group consisting of hormone, cytokine, enzyme, antibody, growth hormone, transcription regulatory factor, blood factor, vaccine, structural protein, ligand protein and receptor.

-- Claim 32. (Original) The method according to claim 31, wherein the physiologically active polypeptide is selected from the group consisting of human growth hormone, growth hormone releasing hormone, growth hormone releasing peptide, interferons, colony stimulating factor, interleukins, glucocerebrosidae, macrophage activating factor, macrophage peptide, B cell factor, T cell factor, protein A, suppressive factor of allergy, cell necrosis glycoprotein, immunotoxin, lymphotoxin, tumor necrosis factor, tumor inhibitory factor, transforming growth factor, alpha-1 antitrypsin, albumin, apolipoprotein-E, erythropoietin, hyper-glycosylated erythropoietin,

factor VII, factor VIII, factor IX, plasminogen activator, urokinase, streptokinase, protein C, C-reactive protein, renin inhibitor, collagenase inhibitor, superoxide dismutase, platelet derived growth factor, epidermal growth factor, osteogenic growth factor, osteogenesis stimulating protein, calcitonin, insulin, atriopeptin, cartilage inducing factor, connective tissue activator protein, follicle stimulating hormone, leutinizing hormone, FSH releasing hormone, nerve growth factor, parathyroid hormone, relaxin, secretin, somatomedin, insulin-like growth factor, adrenocorticotrophic hormone, glucagon, cholecystokinin, pancreatic polypeptide, gastrin releasing peptide, corticotropin releasing factor, thyroid stimulating hormone, monoclonal antibody, polyclonal antibody, antibody derivatives including [Fab]', [Fab]'2, and scFv, and virus-derived vaccine antigen.

-- Claim 33. (Original) The method according to claim 32, wherein the physiologically active polypeptide is human growth hormone, interferon-alpha, granulocyte colony stimulating factor or erythropoietin.

-- Claim 34. (New) A pharmaceutical composition having a prolonged half-life of a physiologically active polypeptide, which comprises a protein conjugate of claim 2 and a pharmaceutically acceptable carrier.

-- Claim 35. (New) A pharmaceutical composition having a prolonged half-life of a physiologically active polypeptide, which comprises a protein conjugate of claim 3 and a pharmaceutically acceptable carrier.

-- Claim 36. (New) A pharmaceutical composition having a prolonged half-life of a physiologically active polypeptide, which comprises a protein conjugate of claim 4 and a pharmaceutically acceptable carrier.

-- Claim 37. (New) A pharmaceutical composition having a prolonged half-life of a physiologically active polypeptide, which comprises a protein conjugate of claim 5 and a pharmaceutically acceptable carrier.

--Claim 38. (New) A pharmaceutical composition having a prolonged half-life of a physiologically active polypeptide, which comprises a protein conjugate of claim 6 and a pharmaceutically acceptable carrier.

-- Claim 39. (New) A pharmaceutical composition having a prolonged half-life of a physiologically active polypeptide, which comprises a protein conjugate of claim 7 and a pharmaceutically acceptable carrier.

-- Claim 40. (New) A pharmaceutical composition having a prolonged half-life of a physiologically active polypeptide, which comprises a protein conjugate of claim 8 and a pharmaceutically acceptable carrier.

-- Claim 41. (New) A pharmaceutical composition having a prolonged half-life of a physiologically active polypeptide, which comprises a protein conjugate of claim 9 and a pharmaceutically acceptable carrier.

-- Claim 42. (New) A pharmaceutical composition having a prolonged half-life of a physiologically active polypeptide, which comprises a protein conjugate of claim 10 and a pharmaceutically acceptable carrier.

--Claim 43. (New) A pharmaceutical composition having a prolonged half-life of a physiologically active polypeptide, which comprises a protein conjugate of claim 11 and a pharmaceutically acceptable carrier.

-- Claim 44. (New) A pharmaceutical composition having a prolonged half-life of a physiologically active polypeptide, which comprises a protein conjugate of claim 12 and a pharmaceutically acceptable carrier.

-- Claim 45. (New) A pharmaceutical composition having a prolonged half-life of a physiologically active polypeptide, which comprises a protein conjugate of claim 13 and a pharmaceutically acceptable carrier.

--Claim 46. (New) A pharmaceutical composition having a prolonged half-life of a physiologically active polypeptide, which comprises a protein conjugate of claim 14 and a pharmaceutically acceptable carrier.

-- Claim 47. (New) A pharmaceutical composition having a prolonged half-life of a physiologically active polypeptide, which comprises a protein conjugate of claim 15 and a pharmaceutically acceptable carrier.